

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 1-14 are now present in this application. Claim 1 is independent. Amendments have been made to the Abstract of the Disclosure and specification, and claims 1, 2, 3, 5, 6, 9, 12 and 14 have been amended. Reconsideration of this application, as amended, is respectfully requested.

Priority Under 35 U.S.C. § 119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority document.

Objection to the Drawings

The Examiner has objected to the drawings because reference character "10" has been used to designate both a plurality of lugs and the panel.

In order to overcome this objection, Applicants are concurrently submitting Proposed Drawing Corrections for the Examiner's approval, which specifically addresses the deficiency pointed out by the Examiner. Accordingly, reconsideration and withdrawal of this objection are respectfully requested.

Further, Applicants are concurrently submitting Proposed Drawing Corrections to amend the text in Figures 2 and 4. Approval of the Proposed Drawing Corrections are respectfully requested.

Specification Objection

The Examiner has objected to the specification because of several informalities.

In order to overcome this objection, Applicants have amended the specification in order to correct the deficiencies pointed out by the Examiner. In addition, a Substitute Specification is being provided in order to place the application in better form. Also included is a marked-up copy of the original specification which shows the portions of the original specification which are being added and deleted. Applicants respectfully submit that the substitute specification includes no new matter and that the substitute specification includes the same changes as are indicated in the marked-up copy of the original specification showing additions and deletions. Reconsideration and withdrawal of this objection are respectfully requested.

Claim Objections

The Examiner has objected to claim 2 because “3000kgf” should be “3000 kgf”. In order to overcome this objection, Applicants have amended claim 2 in order to correct the specific deficiency pointed out by the Examiner. Reconsideration and withdrawal of this objection are respectfully requested.

Claim Amendments

Applicants have amended the claims in order to correct minor typographical errors, and to place the claims in better form. The claim amendments are not being made in response to any statutory requirement for patentability, and have not been narrowed in scope. Instead, the claims have been amended merely to recite the subject matter therein more clearly.

Rejection Under 35 U.S.C. § 112, 2nd Paragraph

Claims 1-14 stand rejected under 35 U.S.C. § 112, 2nd Paragraph. This rejection is respectfully traversed.

The Examiner has set forth certain instances wherein the claim language is not clearly understood.

With regard to claim 1, the Examiner asserts that Applicants claim the use of an implosion proof means as being either strapped or coated, and it is “unclear as to what the Applicant’s invention is, since a strapping means and a coating means are not functionally equivalent.”

Applicants disagree with the Examiner’s assertion. Particularly, if the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, 35 U.S.C. 112, second paragraph demands no more. See *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367 (Fed. Cir. 1986). It is clear from the specification and the language of claim 1 that a strapped implosion proof means and a coated implosion proof means both accomplish the functional purpose of providing an implosion proof structure.

With regard to claims 2 and 9, Applicants have amended claims 2 and 9 to correct each of the deficiencies specifically pointed out by the Examiner. Applicants respectfully submit that the claims, as amended, particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejection Under 35 U.S.C. § 102

Claims 1, 2, 4/1, 4/2/1, 7 and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent no. 5,965,974 to Saito et al. (Saito). This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Saito discloses a panel portion 1 and a funnel 6 (see Saito, Fig. 1) of a cathode ray tube (the cathode ray tube of Saito is not disclosed as being a flat cathode ray tube as claimed). The panel portion 1 and funnel portion 6 are melt-fused together by a frit glass e.g. solder glass (Saito, Col.3, lines 47-48). In other words, the panel portion 1 and funnel portion 6 share a common seam, which is clearly seen in Figure 1 (see also Fig. 2). Further, Saito discloses a heat-shrink band 7. At the time of evacuation, in order to prevent the deformation of the front surface of the panel portion 1 and to protect the panel portion 1, the heat-shrink band 7 is fitted over the outer periphery of the panel portion 1 (Saito, Col.4, lines 1-3).

The heat-shrink band is located entirely forward of the seam (toward the left in Fig.1) around the panel portion 1. Therefore, it is clear that the heat-shrink band 7 (implosion proof means) of Saito is not strapped or coated on an outer circumferential surface of a funnel as claimed, but rather, it is fitted over the panel portion 1.

The theory of Saito is that implosion of a CRT is caused by deformation of the panel. Therefore, placement of a heat shrink band around the panel itself prevents deformation of the panel by creating compressive stress throughout the panel, and thus prevents implosion of the CRT. Applicants have disclosed that problems are associated with a method of applying a band around a panel of a CRT. However, the disclosed problems are addressed by strapping or coating an implosion proof means on an outer circumferential surface of a funnel, thereby creating a bending moment offsetting deformation of the panel caused by evacuation, and restoring a cathode ray tube to a form close to a form before evacuation (see, e.g., Fig. 6 of the application). Thus, the present invention provides an entirely different way to prevent implosion of a flat CRT.

Therefore, Saito does not disclose implosion proof means strapped or coated on an outer circumferential surface of a funnel in the vicinity of the panel of said flat cathode ray tube, as recited in independent claim 1 (as amended).

Claims 2, 4/1, 4/2/1, 7 and 8 depend, either directly or indirectly, on independent 1, and therefore are patentable for at least the reasons stated with respect to independent claim 1. Reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Claims 1, 9, 10, 11 and 13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,943,862 to Uesaka et al. (Uesaka). This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office

Action, and is not being repeated here.

Uesaka discloses a faceplate 2 and a funnel shaped glass envelope 1 (see Fig.1). The faceplate 2 is not identified as part of the envelope, but rather, is shown and labeled as a separate part of a cathode ray tube. As shown in FIG. 2, a coating material for the first resin-coated layer 3 is first sprayed onto the faceplate 2 under a pressure of 3.5 kilogram per square centimeter with the use of a spraying technique 9, and is then dried by radiating ultraviolet rays of light for 30 seconds with the use of a high pressure mercury lamp 10 of 80 W/cm rated output to cure, i.e., harden, the first resin-coated layer 3, which lamp 10 is positioned at a location spaced about 15 cm from the faceplate 2.

Subsequent to the curing of the first resin-coated layer 3, a coating material for the second resin-coated layer 4 is similarly sprayed under a pressure of 3.0 kilogram per square centimeter so as to cover the first resin-coated layer 3, followed by the radiation of ultraviolet rays of light for 30 seconds with the use of a similar mercury lamp of 80 W/cm rated output to complete the second resin-coated layer 4.

After the complete formation of the second resin-coated layer 4, a coating material for the hard coated layer 5 is sprayed under a pressure of 1.0 to 2.0 kilogram per square centimeter and is then exposed to ultraviolet rays of light to cure the hard coated layer 5, thereby completing the layered protective structure (Uesaka, Col.6, lines 44-65).

It is clear (see Fig.2) that the layers are sprayed on the front face of the faceplate 2. Uesaka does not show that any portion of these sprayed layers ever come into contact with the actual funnel shaped envelope 1. It is less likely that an outer circumferential surface of the funnel shaped envelope would be coated even incidentally. Finally, Uesaka does not pertain to a flat cathode ray tube.

Therefore, Uesaka fails to disclose implosion proof means strapped or coated on an outer circumferential surface of a funnel in the vicinity of the panel of said flat cathode ray tube, as recited in independent claim 1, as amended.

Claims, 9, 10, 11 and 13 depend, either directly or indirectly, on independent 1, and therefore are patentable for at least the reasons stated with respect to independent claim 1. Reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 3, 5 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Saito, and claims 12 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Uesaka. These rejections are respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action.

With regard to dependent claims 3, 5, 6, 12 and 14, Applicants submit that claims 3, 5, 6, 12 and 14 depend, either directly or indirectly, from independent claim 1, which is allowable for the reasons set forth above, and therefore claims 3, 5, 6, 12 and 14 are allowable based on their dependence from claim 1. Reconsideration and allowance thereof are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Percy L. Square, Registration No. 51,084, at (703) 205-8034, in the Washington, D.C. area.

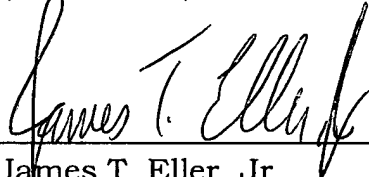
Prompt and favorable consideration of this Amendment is respectfully requested.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By: 

James T. Eller, Jr.
Reg. No.: 39,538

JTE/PLS:asc

P.O. Box 747
Falls Church, Virginia 22040-0747
Telephone: (703)205-8000

Attachment: Version with Markings to Show Changes Made
Abstract of the Disclosure
Substitute Specification (with marked-up copy)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Abstract of the Disclosure:

The Abstract of the Disclosure has been amended as follows:

--ABSTRACT

Implosion proof structure in a flat cathode ray tube having a panel [the] to which atmospheric pressure [exerts thereto] is exerted as the flat cathode ray tube is evacuated, including implosion proof means strapped or coated on an outer circumferential surface of a funnel in the vicinity of the panel, thereby enhancing an implosion proof strength of the flat cathode ray tube.--

In the Specification:

A marked-up version of the Substitute Specification, showing the changes made, is attached hereto.

In the Claims:

The claims have been amended as follows:

1. (Amended) An implosion proof structure in a flat cathode ray tube having a panel upon which [the] atmospheric pressure [exerts thereto] is exerted as the flat cathode ray tube is evacuated, comprising:

implosion proof means strapped or coated on an outer circumferential surface of a funnel in the vicinity of the panel of said flat cathode ray tube.

2. (Amended) An implosion proof structure as claimed in claim 1, wherein the implosion proof means is strapped and has a strapping tension in a range of 600 - 3000 kgf [~3000kgf].

3. (Amended) An implosion proof structure as claimed in claim 1, wherein the outer circumferential surface of the funnel [the implosion proof

means is strapped or coated thereto] includes a flat portion perpendicular to the panel.

5. (Amended) An implosion proof structure as claimed in claim 3, wherein the outer circumferential surface of the funnel [perpendicular to the panel] has a width larger than a width of the [band, the] implosion proof means, wherein said implosion proof means is a band.

6. (Amended) An implosion proof structure as claimed in claim 5, wherein a width of the flat portion of the funnel [the band is strapped thereto] is set to be equal to, or greater than 16mm.

9. (Amended) An implosion proof structure as claimed in claim 1 [or 2], wherein the implosion proof means is a coat of hardening adhesive with a required yield strength after it is hardened.

12. (Amended) An implosion proof structure as claimed in claim 9, wherein the hardening adhesive is formed of a material having a difference [of] in thermal expansion/contraction coefficients between the hardening adhesive after it is hardened and the funnel to be below [approx.] approximately $5 \times 10^{-7}/^{\circ}\text{C}$.

14. (Amended) An implosion proof structure as claimed in claim 13, wherein the ceramic adhesive has a difference [of] in thermal expansion/contraction coefficients between the ceramic adhesive after it is hardened and the funnel to be below [approx.] approximately $[\pm]5 \times 10^{-7}/^{\circ}\text{C}$.